Title	ICR News 2015
Author(s)	
Citation	ICR annual report (2015), 22: iv-v
Issue Date	2015
URL	http://hdl.handle.net/2433/209881
Right	
Type	Article
Textversion	publisher

ICR News 2015

ICR Joint Usage / Research Center: from first to second term

Prof WATANABE, Hiroshi (Head of Joint Research Station in the first term)

In 2010, the Institute for Chemical Research (ICR) began to serve as the Joint Usage/Research Center (JURC) approved by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. Since then, ICR-JURC has been offering its facilities, equipment, and international hub functionality as a base for joint research with out-of-ICR researchers working in chemistry-related fields, aiming at construction of a dense, interdisciplinary network of Japanese and overseas researchers, and at deepening the basic understanding in those fields. The joint research, backed up with frontier knowledge and hospitality of the ICR faculty members, has resulted in fruitful achievements, with over 400 joint papers published in internationally prestigious journals. These activities of ICR-JURC are highly appreciated by the participating researchers (as reported in *http://www.kuicr.kyoto-u.ac.jp/kyodo/tenkenhokoku24.pdf* and *http://www.kuicr.kyoto-u.ac.jp/kyodo/H27q.pdf*).

In 2015, MEXT evaluated the activities of ICR-JURC favorably to approve ICR as the JURC in the second term as of April 2016. In the second term (covering six years), ICR-JURC will conduct advanced joint research in chemistry-related fields, with the emphasis being placed on global cooperation and basic research that could also help development of a sustainable human society. The Joint Research Station, headed by Professor Toshiharu Teranishi in the second term, serves as the headquarter of ICR-JURC, and all ICR faculty members will make significant efforts to advance the joint research, ensuring us of further achievements by ICR-JURC in the second term.

Joint Research Project “Smart-Materials” (2015–2020)

Prof TSUJII, Yoshinobu (Vice-Director of ICR)

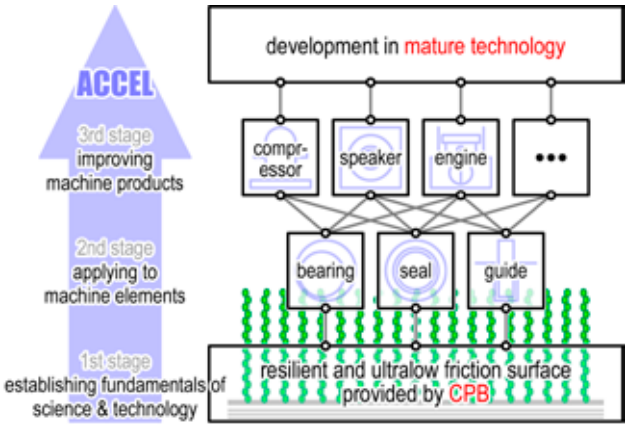
Since April of 2015, the Institute for Chemical Research (ICR), the Institute of Advanced Energy (IAE), and the Research Institute for Sustainable Humanosphere (RISH) have been working in cooperation on the “Smart-Materials” project, supported by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. The ever-increasing demand for materials and energy by the present social system has almost reached its limit, and the environment is heavily burdened by harmful byproducts and surplus heat from mass production. In order to overcome these issues, this project aims to fabricate smart materials and develop a joint research organization, achieving green innovation through “zero loss” at the production/transportation/usage of materials/energy. The model for the target materials is a biological system with molecular recognition ability, autonomy, and activity. The key to success is interdisciplinary research with flexibility and rapidity. Taking advantage of the three institutes being located at the same campus (Uji campus of Kyoto University), the under-one-roof scheme is expected to deliver internationally excellent results, contributing significantly to this research field.

ACCEL Project (2015–2020) : Development of Novel “SRT” System

Prof TSUJII, Yoshinobu

Japan Science and Technology Agency (JST), Strategic Basic Research Program, ACCEL, “Reinforcement of Resiliency of Concentrated Polymer Brushes and Its Tribological Applications — Development of Novel ‘Soft and Resilient Tribology (SRT)’ System”

Previously, we demonstrated that the concentrated polymer brushes (CPBs) newly synthesized by living radical polymerizations inherently possess unique structures and properties, such as high modulus, ultra-low friction and good lubrication, and excellent biocompatibility. On the basis of such breakthroughs, not only in polymer synthesis but also in polymer physics, this ACCEL project aims to reinforce such soft and resilient properties derived from the CPBs and hence apply them to various sliding mechanical elements, e.g., sliding bearings and seals, for prolonged life and energy saving. Our final goal is to develop a novel soft and resilient tribology (SRT) system for practical use through industry–academia collaboration. Eight universities and six companies are involved.



Mini History Exhibition Corner Was Opened

Prof TSUJII, Yoshinobu (Vice-Director of ICR)

The Institute for Chemical Research (ICR), Kyoto University has been working on archiving its research results in order to widely announce their history of contributions to science and technology. As part of this attempt, a mini history exhibition corner was opened in March 2015 for an attractive outreach activity by ICR, with financial support from Kyoto University. It was designed especially for middle and high school students who visit the ICR. There are materials displayed (historical documents and photographs) related to scientists and projects previously enrolled and associated with the ICR, including “Vinylon” and “Synthetic Oil” (approved as Chemical Heritages by the Chemical Society of Japan). The collection of “Vinylon” is also registered in the Kyoto University Digital Archive System (KUDAS).